

Factors

Standard: **M05.A-F.2.1**- Solve multiplication and division problems involving fractions and whole numbers (straight computation or word problems).

Practice Standard: 5- Use appropriate tools strategically

Materials: Number grid for game, two-color counters, calculator

Mental Math Activity:

Mental division ($24/2$, $24/3$, $24/4$, $24/6$, $24/8$, $24/12$, $24/24$), talk through strategies

Mini-lesson on using a factor rainbow to make a complete list of factors for a number

Game: Factor Captor

Two players take turns selecting two-digit target numbers and finding their factors on a number grid. As each target number is selected and each factor is found, its square is covered. The value of each target number is added to the score of the player who selected it. The sum of the corresponding factors is added to the score of the player who found them. Players discuss and justify their work to each other, then use a calculator to check. Any missed factors are covered but not scored. If a player chooses an incorrect factor, no points are scored. When players have covered all of the numbers on the grid, the player with the higher score wins.

Online version:

https://emgames.everydaymathonline.com/demosite/demo_chooser_5.html

What questions you will ask as students are engaged in the activity to surface the mathematics?

- What strategy are you using to choose a target number?
- What are you doing to find all the factors of a number?
- Is there another strategy to find the factors? (e.g. factor rainbow)
- Is there a type of target number that would limit your opponent's chances to earn points?
- If the target number is prime, why does that limit your opponent's choice?

Extend this lesson into finding common factors for computations or problem solving with fractions (e.g. add and simplify)